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Evaluation of pediatric ophthalmic consultations in a tertiary care university hospital

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ABSTRACT

Aim: To characterize the patient groups referred to the ophthalmology clinic from the pediatrics clinic and to determine the frequency of the findings.

Material and Method: The patients consulted to Balıkesir University Eye Clinic by the Pediatrics Clinic were evaluated retrospectively. Patients were divided into rule-out and ocular symptom groups. Reasons for consultation and ocular findings were recorded.

Results: The mean age of 116 patients included in the study was 8.04±4.11 years. Of the patients included in the study, 75 (64.7%) rule-out 41 (35.3%) were in the ocular symptom group. 41 (54.7%) patients in the rule-out group were those who applied for headaches and requested an examination of the fundus and optic disc. Papilledema was detected in 7 (17.1%) patients with headache. Of the patients in the ocular symptom group, 11 (26.8%) were consulted for ocular trauma, 11 (26.8%) for red eye, and 7 (17.1%) for preseptal/orbital cellulitis. Preseptal cellulitis was detected in 4 (57.1%) patients consulted for preseptal/orbital cellulitis. Ocular findings were detected in 10 (91%) patients consulted for trauma. Conjunctivitis was detected in 9 (81.8%) patients who were consulted with red eyes.

Conclusion: In the pediatric age group, ophthalmic consultation is mainly performed due to rule-out. The most common reason is the examination of the fundus of the eye due to headache. It is crucial for pediatric age groups to consult an ophthalmologist by performing an eye and vision examination by a pediatrician in terms of early diagnosis and treatment.

Keywords: Pediatric age group, ophthalmic consultation, headache papilledema, ocular trauma

INTRODUCTION

Ophthalmology consultation for eye involvement in patients admitted to the hospital due to a systemic disease or surgical intervention has a significant place in the daily routine of ophthalmologists. Many systemic diseases progress with ocular findings and may be affected by medical treatment, or ocular involvement may occur after surgical intervention (1-5). Many conditions, such as the general condition and catheterization of inpatients, can affect the optimal eye examination. Bedside examinations can be performed with portable biomicroscopes and Tonopen, which can measure intraocular pressure (6).

The eye is affected by many conditions, such as diabetes mellitus (DM), hypertension, rheumatic diseases and metabolic disorders in the pediatric age group (7-10). Eye involvement may also occur in cases such as headache, infection and trauma (11). Anterior and posterior segment findings of the eye help guide the pediatrician to the correct diagnosis. In addition, regular follow-up of some drugs in terms of eye effects is required (12).

In the literature, eye consultations of inpatient groups were investigated (1,2). In the pediatric age group, there are few studies on this subject (13-15). However, in many cases, including systemic diseases in the pediatric age group, patients are followed up on an outpatient basis. For this reason, we aimed to characterize all patient groups referred from the pediatrics clinic to the ophthalmology clinic through consultation. Thus, we increase awareness of the patient groups followed and treated jointly by pediatricians and ophthalmologists.

MATERIAL AND METHOD

The study was carried out with the permission of Balıkesir University Clinical Researchs Ethics Committee (Date: 04.01.2023, Decision No: 2023/10). All procedures were

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carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Patients consulted by the Pediatrics Clinic of BalıkesirUniversity Faculty of Medicine Ophthalmology Clinic between January 2020 and December 2022 were included in this retrospective study. Local ethics committee approval was obtained for the study, and the study was conducted in accordance with the Declaration of Helsinki.

Patients under 18 who were referred to the eye clinic with a consultation note after being examined by a pediatrician were included in the study. Patients with missing medical records and patients referred for screening for retinopathy of prematurity (ROP) were excluded from the study.

Age, gender, the reason for consultation, full ophthalmological examination findings and diagnosis of all patients were recorded. Consultations were divided into two groups: rule-out group (headache, systemic diseases, hereditary syndromes, etc.) and ocular symptom and sign group (red eye, diplopia, ocular trauma, etc.).

Data analysis was performed using SPSS 21.0. Study data were expressed as frequency, percentage, mean, and standard deviation.

RESULTS

A total of 161 pediatric patient consultations were identified between the analyzed dates. After excluding 31 patients consulted for ROP screening and 14 patients with missing medical records, 116 patients were included in the study. Of the patients, 48 (41.4%) were female, 68 (58.6%) were male, and the mean age was 8.04±4.11 years.

Seventy-five (64.7%) of the patients included in the study were in the rule-out group. 41 (54.7%) of this group's patients requested an examination of the fundus and optic disc due to headache. Papilledema was detected in 7 (17.1%) patients with headache. 16 (21.3%) patients included examination for ocular findings in patients with a known or suspected syndrome. In the group of patients with the syndrome, 3 (20%) patients were required to have eye scans due to microcephaly/macrocephaly, and 3 (20%) patients for suspected neurofibromatosis. Other causes included trisomy 18, down syndrome, and Wilson's disease. In one patient, chorioretinitis was detected in the baby due to rubella in the mother. Diabetes mellitus, rheumatic diseases and collagen tissue diseases, and consultations due to eye scans due to drug (topiramate) use were among other causes. **Table 1** shows the reasons for consultation and the frequency of ocular findings in the rule-out group.

Table 1. Reasons for consultation and frequency of ocular findings in the rule-out group

Reason	Presence of ocular findings
Headache	7/41
Syndrome	3/16
Suspected trauma	0/1
Other	2/17

Forty-one (35.3%) patients included in the study were those consulted for ocular signs and symptoms. Of these patients, 11 (26.8%) were consulted for ocular trauma, 11 (26.8%) for red eye, and 7 (17.1%) for preseptal/orbital cellulitis. Preseptal cellulitis was detected in 4 (57.1%) patients consulted for preseptal/orbital cellulitis. Ocular findings were detected in 10 (91%) patients consulted for trauma. Eye globe perforation was found in 2 trauma patients, corneal epithelial defect in 4, corneal foreign body in 3, and conjunctival abrasion in 1 patient. Conjunctivitis was detected in 9 (81.8%) patients who were consulted with red eyes. The most common cause was adenoviral keratoconjunctivitis. Other reasons for consultation included low vision, strabismus, ptosis, and dizziness. **Table 2** shows the reasons for consultation due to ocular signs and symptoms and the frequency of eye involvement.

Table 2. Reasons for consultation and frequency of ocular findings in the ocular symptom and sign group

Reason	Presence of ocular findings
Preseptal/orbital cellulitis	4/7
Trauma	10/11
Red eye	9/11
Diplopia	0/1
Other	6/11

DISCUSSION

In this study, the reasons and findings of the children referred to the eye department by the pediatrician were investigated. According to the results of our study, patients were mainly consulted to evaluate eye involvement in disease. Children who applied mostly because of headache were consulted for fundus examination. In the patient group with any ocular finding, the patient was primarily consulted because of red eye and preseptal/orbital cellulitis.

Ophthalmic consultations are essential in diagnosing some diseases and follow-up of eye involvement in some systemic diseases. There are very few studies in the literature about eye consultation of patients in the pediatric age group (13-15). These studies addressed eye consultations of pediatric inpatients. We also evaluated outpatients in our study. Many systemic diseases are also followed as outpatients.

In our study, we observed that most patients were consulted for rule out. This was consistent with other studies as well (13-15). In our study, the most common reason for consultation in the rule-out group was headache. In case of increased intracranial pressure, scanning the fundus for papilledema is very helpful in the diagnosis (11). Papilledema was detected in 17.1% of these children. In other studies, the rule-out group's most common reason for consultation was eye screening for systemic diseases (13-15). This difference may be due to the size of the hospital's pediatric service and the inclusion of only inpatients in other studies. The second most common reason for consultation in the rule-out group in our study was to screen for eye involvement of various syndromes. Trisomy 18, Down syndrome, neurofibromatosis, Marfan's disease, Wilson's disease, and microcephaly/macrocephaly were diseases in this group. Some findings, such as pallor in the optic disc, Lisch nodules, kayser-Fleischer ring, and lens subluxation, can be found as ocular findings in these diseases (16-18). In our study group, no ocular findings were detected in the patients referred for this purpose. In our study, 21.3% of patients were consulted due to systemic diseases. These diseases included type 1 DM, collagen tissue diseases, rheumatic diseases and Behcet disease. Although diabetic retinopathy (DR) is not as prevalent in children as in adults, it is known that DR develops in 6% of children with type 1 DM (19). Chorioretinitis was detected in a newborn whose mother had rubella in the rule-out group.

In our study, 35.3% of patients included ophthalmic consultation of patients with ocular symptoms or signs. The patients were primarily consulted because of trauma and red eye. Eye findings were detected in 91% of the patients referred for trauma, and 81.8% of the patients consulted for red eye. Naturally, the patients whose ocular findings were detected by the pediatrician had a higher rate of ocular involvement than the rule-out group. In the study of Güngör et al. (13) in inpatients children, the red eye was the second most common reason for consultation, and the most common reason was conjunctivitis. In our study, conjunctivitis was the most common cause of red eye. In addition, uveitis, herpetic keratoconjunctivitis and ocular rosacea were other causes. Consultation of patients evaluated by pediatricians due to trauma to the ocular region regarding possible eye injuries is significant. In this way, there may be a chance to apply early treatment to injuries that will be ignored by the child and his family because they do not cause severe symptoms. In our study, the corneal epithelial defect was the most common finding in patients consulted due to ocular trauma. Follow-up of these patients with appropriate treatment also prevents permanent corneal opacities. 57.1% of the patients consulted for preseptal/orbital cellulitis were evaluated as preseptal cellulitis. Daily follow-up of these patients is critical in terms of early treatment change in the progression of orbital cellulitis (20). Other reasons for consultation in the ocular symptom and finding group are low vision, dizziness or diplopia, strabismus and ptosis. With a correct visual examination by the pediatrician, refractive errors can be detected earlier, and possible amblyopia can be prevented. This group of patients must be referred to an ophthalmologist, as amblyopia can also occur in cases of strabismus and ptosis.

The most important limitation of our study is that it is a cross-sectional retrospective study. We cannot comment on the development of ocular findings, especially in children with chronic diseases. Another limiting factor is that the study was single-center. However, considering that only inpatient consultations are not evaluated and that many systemic diseases are followed up on an outpatient basis, it is valuable in terms of being the first study to evaluate the eye consultations of pediatric patients with this method.

CONCLUSION

Ophthalmic consultation by a pediatrician is very important in planning the diagnosis and treatment of various systemic diseases in the pediatric age group and in the early diagnosis and treatment of possible eye diseases that are not aware of by the family and the child. In this regard, combined studies of pediatricians and ophthalmologists may prevent irreversible vision loss.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Balıkesir University Faculty of Medicine Clinical Researches Ethics Committee (Date: 04.01.2023, Decision No:2023/10)

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

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